

27th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)  
Constellations and Distributed Systems (7)

Author: Mrs. Ery Fitriyaningsih

Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia, ery\_fitrianingsih@yahoo.com

Mr. Hasan Mayditia

Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia, hsn.mayditia@gmail.com

Mr. Poki Agung Budiantoro

Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia, pokiagung@gmail.com

Mr. Bina Pratomo

Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia, bina.pratomo@lapan.go.id

Mr. Dwiyanto dwiyanto

Indonesian National Institute of Aeronautics and Space (LAPAN), Indonesia, dwiyanto@lapan.go.id

MISSION ANALYSIS OF INDONESIA LOW EARTH MICRO SATELLITE CONSTELLATION

**Abstract**

The Indonesia ongoing satellite program, LAPAN A5, addressing natural disaster issues that frequently occurred in Indonesia. The main objective of the mission is to collect the disaster related data from existing ground and sea sensors which currently rely on terrestrial communication and foreign satellite network. The mission also requires continuous communication from user-to-user which is often an issue when the terrestrial communication infrastructure fails during the time of disaster. A series of equatorial Low-Earth Orbit (LEO) satellite will be place in constellation on equatorial plane to gain the maximum benefit of the country's geographical position.

The mission constraints implied to technical challenges including the number of satellites to fulfill the mission. In the other hand, it is critical to make sure that each satellite can cover the whole Indonesian region without any blank spot using the S-bands communication antenna inherited from LAPAN A3. This paper will present the mission analysis of LAPAN A5 emphasizing on the coverage analysis to find the best configuration of the antenna placement and pointing strategy for the selected orbit.